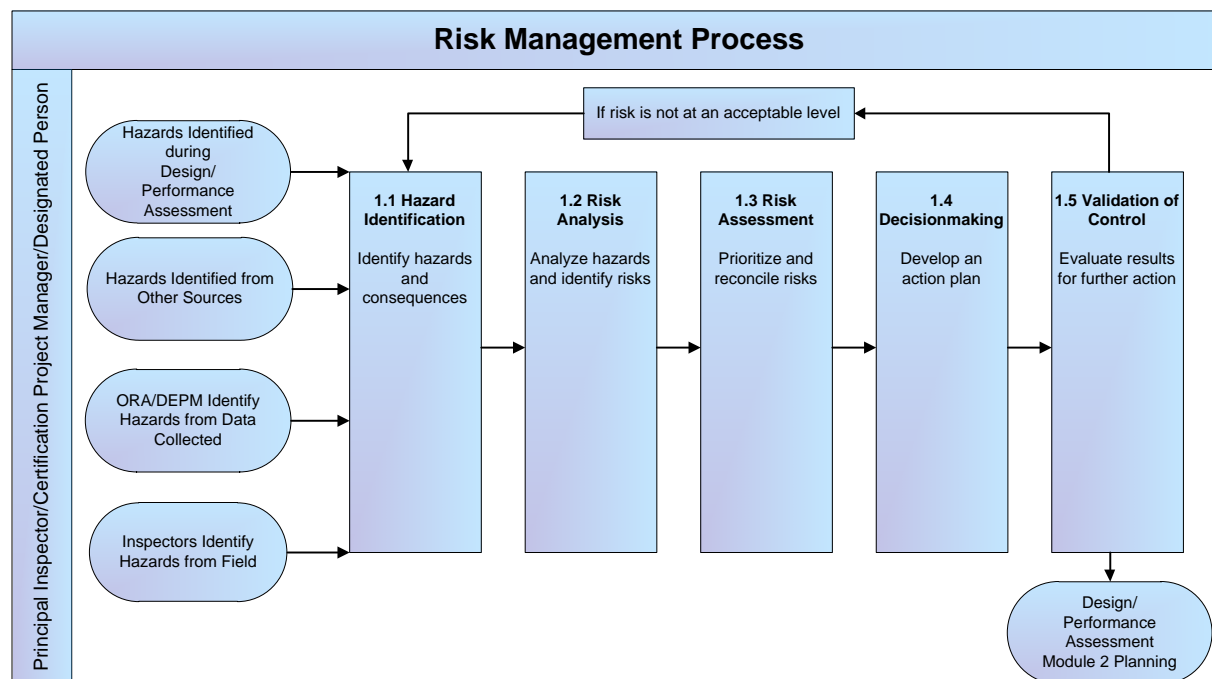


VOLUME 10 AIR TRANSPORTATION OVERSIGHT SYSTEM

CHAPTER 3 RISK MANAGEMENT PROCESS

Section 1 Risk Management Process

Figure 10-56. Risk Management Process



10-338 INTRODUCTION TO THE RISK MANAGEMENT PROCESS (RMP). The RMP provides Certificate Management Teams (CMT) and Certification Project Teams (CPT) with procedures to manage hazards and their associated risks. The RMP provides the CMT/CPT with a means to document and track hazards, and to oversee and evaluate the disposition of associated risks. This process has five major steps, including:

- Hazard identification (identify hazards and consequences),
- Risk analysis (analyze hazards and identify risks),
- Risk assessment (consolidate and prioritize risks),
- Decisionmaking (develop an action plan), and
- Validation of control (evaluate results for further action).

A. When to Use the RMP. Use the RMP to address any hazard identified by any CMT member that the principal inspector (PI) or certification project manager (CPM) decides is significant enough to justify analysis and tracking. Systemic hazards are often good candidates for this process. Examples include:

- The output of the tools in Volume 6, Chapter 2, Section 18, Evaluation of Air Carrier's Management of Significant Changes;
- Voluntary Disclosure Reporting Programs (VDRP);
- Aviation Safety Action Programs (ASAP);
- Internal Evaluation Programs (IEP);
- Local, regional, national, or any other unique considerations; and
- Potential Airworthiness Directive (AD) noncompliance.

NOTE: Volume 6, Chapter 2, Section 18, paragraph 6-570, Figure 6-29, subparagraph 3, and Figure 6-30, subparagraph 3, require the PI to begin an RMP immediately and closely track all issues of concern for overall word picture scores of 9-45 and 8-39.

B. RMP Participants. The primary participants of the RMP process are PIs. Nonsupervisory PIs must collaborate with the Front Line Manager (FLM) to determine work assignments and resource needs. The PI may request the FLM to assign any CMT member to act as the Designated Person (DP) for the RMP. PIs are encouraged to include CMT aviation safety inspectors (ASI), Operations Research Analysts (ORA), and data evaluation program managers (DEPM), when appropriate, to assist with historical data collection and statistical information. Any CMT ASI can identify hazards, be assigned as a DP, and/or be assigned action items associated with the RMP. RMP work requests appear on the ASI's Data Collection Assignment page.

10-339 SPECIFIC RESPONSIBILITIES FOR AIR TRANSPORTATION OVERSIGHT SYSTEM (ATOS) RMP.

A. Office Manager Responsible for the CMT/CPT. This individual obtains and provides resources to support the RMP development and accomplishment. This includes funding travel when necessary.

B. FLM or Supervisory PI.

- 1) Ensures that the RMP work assignments are resourced in accordance with established ATOS processes and procedures.
- 2) Ensures the ASIs conduct their assigned work plans according to the CPM's or PI's specific inspection instructions.
- 3) Resolves differences of opinion between reporting ASIs and the PI.
- 4) Ensures a proper closeout and/or transfer of the RMP.

C. CPM or PI.

- 1) Is responsible for the RMP.
- 2) Determines when it is appropriate to use the RMP.

3) Collects and organizes information to initiate an RMP; solicits input from team members such as ORAs and/or a DEPM, if available.

4) Analyzes risk and ensures that the air carrier addresses hazards by using the RMP to document rationale, develop action items, and monitor progress.

NOTE: Nonsupervisory PIs must collaborate with the FLM to determine work assignments and resource needs. A nonsupervisory PI may recommend to the FLM that another CMT member be assigned as a DP to develop the RMP action plan.

D. ORA. Provides guidance, expert advice, data collection, and analysis.

E. DEPM or Data Reviewer. Participates in the development of a risk management (RM) plan and provides expert advice for RMP activities.

F. DP. Assumes the PI's authority for accomplishing the RMP.

G. ASI.

1) Brings hazards, risks, and/or adverse trends to the attention of the PI.

2) Participates in the planning activities to develop the RMP.

3) Accomplishes action item tasks associated with the RMP.

4) Reports data in accordance with the data quality guidelines (DQGs) using the appropriate tool when reporting observation for RMP action items.

10-340 HAZARD IDENTIFICATION (IDENTIFY HAZARDS AND CONSEQUENCES) (see flowchart process step 1.1). A hazard is a condition, event, or circumstance that could lead or contribute to an unplanned or undesired event. The PI, CPM, or DP identifies any hazard in the air carrier's operating environment or systems. The PI, CPM, or DP analyzes data from many sources to determine if hazards are isolated incidents or systemic problems. The ORA continually monitors available data sources to identify events, trends, or patterns that indicate potential safety issues and reports them to the PI. The ORA also reviews issues tracked using an RMP to avoid duplication and identify any issues that might be related. The PI, CPM, or DP analyzes and assesses systemic hazards and their potential consequences to determine the level of risk associated with the hazard. Without conducting a complete analysis, the PI may notify the air carrier of any isolated incidences that do not require a complete RMP. If the isolated incident leads to noncompliance, then the PI, CPM, or DP must follow national guidance for processing any enforcement action.

A. Name and Describe the Identified Hazard. All members of the CMT should be alert for potential hazards and notify the PI if they discover any hazards. Once the PI, CPM, or DP has identified the hazard, the PI, CPM, or DP prepares a summary that describes the identified hazard, and includes relevant facts such as who, what, why, how often, and where.

B. Determine and Document Potential Consequences. The PI, CPM, or DP determines and documents the potential consequences that could result if the air carrier does not address or correct the hazard. These consequences could be any one of the following:

- Equipment failure,
- Human error,
- Damage to equipment,
- Procedural nonconformance,
- Process breakdown,
- Personal injury or death,
- Regulatory noncompliance,
- Decreased quality or efficiency, or
- Other.

10-341 RISK ANALYSIS (ANALYZE HAZARDS AND IDENTIFY RISKS) (see flowchart process step 1.2). The next step in the RMP is risk analysis. The PI analyzes hazards to identify risk factors that assist in risk analysis and provide specific targets for action plans. Risk factors identify what the air carrier must later mitigate to reduce the overall level of risk. An effective action plan should address risk factors by eliminating them or by reducing their impact.

A. Risk Factors Are Known. The risk factors identify what the air carrier must control in order to reduce the level of risk. These factors then become specific targets for risk control, either by eliminating or reducing the negative effects. The PI, CPM, or DP determines whether there are known risk factors associated with the severity of the consequences and the likelihood of their occurrence. Risk factors are typically situational factors (e.g., operating conditions that promote corrosion, aging aircraft, or high cycle use of aircraft) or deficiencies in design or performance related to safety attributes (e.g., missing attributes or failure to adhere to procedures).

B. Perform Further Analysis. When risk factors are unknown, the PI, CPM, or DP must suspend the RMP and conduct additional research on the risk factors before assessing the risk. The PI, CPM, or DP may use Constructed Dynamic Observation Reports (ConDOR), Safety Attribute Inspections (SAI), Element Performance Inspections (EPI), and the System Analysis Team (SAT) to obtain more information about the factors affecting the level of risk.

C. Identify and Document Risk Factors. After identifying the risk factors associated with a hazard, the PI, CPM, or DP provides a description of each risk factor selected. Identifying the risk factors facilitates the risk assessment process and provides a specific direction for subsequent action plans.

D. Determine the Severity Value. The PI, CPM, or DP determines the appropriate value related to the severity of the potential consequences, should they occur. The PI, CPM, or DP assesses the severity using the standard risk matrix status of high, medium, or low. The PI, CPM, or DP produces the severity assessments using a combination of available data and expert judgment. Severity is defined using the following scale:

- 1) High—Potential loss (or breakdown) of an entire system or subsystem; an accident or incident.
- 2) Medium—Potential moderate damage to an aircraft, partial breakdown of an air carrier system, or violation of regulations or company rules.
- 3) Low—Potential poor air carrier performance or disruption to the air carrier.

E. Determine the Likelihood Value. The PI, CPM, or DP determines the appropriate value related to the likelihood of the consequences actually occurring. The PI, CPM, or DP assesses the likelihood using a combination of available data and expert judgment. Likelihood standard values are defined as follows:

- Frequent—Continuously experienced,
- Probable—Occurs often,
- Occasional—Occurs several times, and
- Remote—Unlikely, but could occur.

10-342 RISK ASSESSMENT (PRIORITIZE AND RECONCILE RISKS) (see flowchart process step 1.3). The PI considers the overall level of risk to determine the priority in ensuring that the air carrier addresses the hazard and its associated level of risk. This assessment assists the PI, CPM, or DP in decisionmaking, action planning, and evaluating air carrier actions. The PI uses this information from the risk analysis to determine the overall level of risk using the following matrix:

Table 10-5. Risk Matrix

Risk Matrix			
Likelihood	Severity		
	High	Medium	Low
Frequent	1	3	5
Probable	2	6	8
Occasional	4	9	11
Remote	7	10	12
Overall Risk Assessment Legend: 1–3 (Red) High Overall Risk 4–9 (Yellow) Medium Overall Risk 10–12 (Blue) Low Overall Risk			

10-343 DECISIONMAKING (DEVELOP AN ACTION PLAN) (see flowchart process step 1.4). Based on the results of the risk analysis, the PI, CPM, or DP determines to do one of the following:

- Eliminate the hazard,
- Mitigate the risk,
- Accept the risk at its existing level, or
- Transfer the risk.

A. Determine if the Action is Within the Scope of the CMT's Authority. The PI, CPM, or DP should determine if the actions required to eliminate the hazard and resulting risk are within the scope of the CMT's authority.

B. Document That Action is Outside the CMT's Authority. The PI or designee documents the facts that show the air carrier is responsible for ensuring the elimination of the hazard or reduction of the level of risk is not within the scope of the Federal Aviation Administration's (FAA) authority.

C. Close the RMP and Transfer the Risk to the Appropriate FAA Organization. When corrective action is beyond the CMT's authority, the PI can allocate the authority, responsibility, and accountability for taking corrective action for the identified hazard to the appropriate FAA organization. The PI, CPM, or DP uses this approach to address risks that may require actions such as rule changes, new or revised ADs, policy changes, and FAA safety recommendations. If an RM action plan is developed, the PI should include this with the information package sent to the receiving organization. Once the PI, CPM, or DP transfers responsibility, he or she will close the RMP. The PI must enter the rationale for closing the RMP. The PI, CPM, or DP might decide to follow up on the status of transferred issues.

D. Acceptable Levels of Risk. Where the overall risk falls into the blue area of the risk matrix, the PI, CPM, or DP may accept it without further action. If the PI or designee determines that the risk level is within normally acceptable limits (blue area), no additional Design Assessments (DA) or Performance Assessments (PA) are required beyond the normal oversight planning.

E. Document Rationale for Acceptable Levels of Risk. The PI or designee documents the rationale for determining that the risk level is within acceptable levels.

F. Close the RMP and Monitor Through Normal Oversight Planning. The PI closes the RMP and monitors the hazard through ATOS. The PI must enter the rationale for closing the RMP.

G. Document Mitigation Rationale for Unacceptable Risk Levels. If the PI, CPM, or DP finds the overall level of risk to be unacceptable, he or she will document the mitigation rationale.

1) Where combinations of severity and likelihood cause the overall level of risk to fall into the red area, the PI, CPM, or DP will assess the risk as unacceptable and further work would be required to eliminate that associated hazard or control the factors that lead to higher risk likelihood or severity.

2) Where the risk assessment falls into the yellow area, the PI, CPM, or DP may accept the risk under defined conditions of mitigation. An example of this situation would be an assessment of the impact of an inoperative aircraft component that is deferred in accordance with a minimum equipment list (MEL). Defining an operational or maintenance procedure in the MEL would constitute a mitigating action that could make an otherwise unacceptable risk acceptable, as long as the defined procedure was implemented. These situations may also require continued special emphasis in the safety assurance function.

H. Develop an Action Plan (see flowchart process step 1.4). The PI, CPM, or DP creates and assigns action items to ensure that the air carrier addresses the identified hazard and mitigates the associated levels of risk. The air carrier, with CMT oversight, usually carries out mitigation. The CMT may take actions that do not involve the participation of the air carrier to effectively oversee the air carrier's mitigation of the hazard and associated levels of risk.

1) Develop and Document Action Items. Action items describe what, how, where, and when an action is necessary. The PI, CPM, or DP develops and documents action items that address the risk factors. Mitigation strategies may include:

- a) Reevaluating the air carrier's programs, approvals, authorizations, deviations, and exemptions.
- b) Amending or revoking the air carrier's authority to conduct all or part of its operation.
- c) Initiating an enforcement investigation.
- d) Suspending the certification process.
- e) Convening the SAT.

2) Select Personnel Resources. The PI or designee selects individuals to perform action items through coordination with the individual's FLM. RMP action items become work assignments once a manager approves them.

3) Work Request Approval. The FLM or supervisory PI determines whether to approve and resource the work assignment. If the FLM or supervisory PI approves and resources the work assignment, the work may begin on the action items.

4) Implement the Action Plan by Completing All Action Items. The assigned ASI completes his or her assigned action items. Throughout the course of the RMP, the PI, CPM, or DP monitors the progress of the action items and ensures their completion.

5) Deleting an RMP. The PI, CPM, or DP can delete the RMP on the RMP hazard list. The option to mark for deletion is no longer available on the hazard list once the manager resources an action item. Changing circumstances may eliminate the need for an RMP. When this occurs, the PI, CPM, or DP will document the relevant information in the action item(s), and explain why there is no longer a need for the RMP. The PI, CPM, or DP should enter this information in comments when he or she closes the RMP.

10-344 VALIDATION OF CONTROL (EVALUATE RESULTS FOR FURTHER

ACTION) (see flowchart process step 1.5). After all action items are complete, or data indicates that the action plan has eliminated the hazard or reduced the associated risk to acceptable levels, the PI, CPM, or DP validates the effectiveness of the selected approach. The PI, CPM, or DP reviews the status of the hazard and verifies that the air carrier has eliminated the hazard or mitigated the level of risk associated with the hazard to an acceptable level. After

evaluating the results of the mitigation strategies, the PI, CPM, or DP decides whether to close the RMP or to require the development and implementation of additional action items.

A. Validation. Validation answers the question, “Did it work?” To complete the validation step, the PI, CPM, or DP evaluates the current status of the hazard and verifies that the air carrier addressed the risk factors that contributed to or caused the hazard to occur, and also verifies that the air carrier has reduced the level of risk posed by the hazard. Using this assessment of the current level of risk, the PI, CPM, or DP decides whether to close the RMP for the risk or whether more implementation actions are required.

B. Risk Factors Identified and Addressed. If all of the risk factors were not initially identified, the PI or designee returns to paragraph 10-341 and adds them to the list of risk factors. The PI, CPM, or DP determines if the action items have addressed each risk factor to the extent possible and describes any changes that have occurred to the risk factors because of the action taken. If any of the identified risk factors are still present and contributing to an unacceptable level of risk, the PI, CPM, or DP will reenter the flowchart in at step 1.1.

C. Update Risk Assessment. After determining that the air carrier has addressed all risk factors to the extent possible, the PI, CPM, or DP reviews the hazard and its consequence descriptions, and determines if they can revise the severity and likelihood values based on the completed action plan. The PI uses this risk analysis information and the risk matrix to determine if the overall level of risk is affected.

D. Level of Risk Acceptable. The PI, CPM, or DP determines whether the risk level is within acceptable limits. If so, no additional action is required beyond the normal oversight planning. The RMP will display the original risk assessment and the new risk assessment in the hazard list.

E. Level of Risk Unacceptable. If the level of risk is unacceptable, the PI, CPM, or DP returns to step 1.1 of the flowchart in Figure 10-56 to review the hazard description and associated details to determine what additional actions are necessary.

F. Close the RMP. After determining that the risk level is acceptable, the PI closes the RMP, enters the closure rationale, and monitors the hazard through DA and PA. If the level of risk is acceptable based on mitigation, then the air carrier and CMT must continually monitor the mitigating strategy (risk control). This helps ensure that the action plan to control the risk continues to be effective for as long as the hazard and associated risk factors exist. Nonsupervisory PIs must collaborate with an FLM to close an RMP.

RESERVED. Paragraphs 10-345 through 10-359.